CARABID.E FROM THE UPPER WILLIAMS RIVER, N. S. WALES.

[COLEOPTERA.]

BY THOMAS G. SLOANE.

At the end of the year 1915, I was one of a party of naturalists organised by Mr. W. J. Enright, of West Maitland, to examine the part of the Mount Royal Range known as The Barrington Tops; this is the plateau, 5000 feet above sea-level, from which the Barrington, Williams, Allyn, Paterson, and other rivers rise. Our ronte was north-west from the town of Dungog along the Williams River; after the level of 3500 feet was reached, the track was along the top of the narrow ridge dividing the valleys of the Williams and Allyn Rivers, till (beyond the source of the Williams) we reached Barrington Tops, about 37 miles from Dungog. The geological formation of this part of the Dungog District is Permo-Carboniferous, the Barrington Tops being basalt-capped.

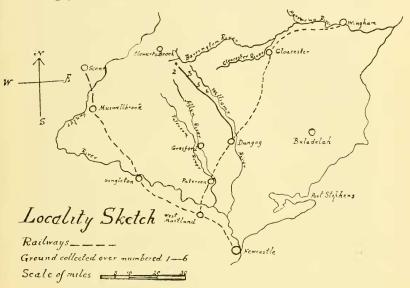
Our camp was at Mr. William Edwards' house on the southern source of the Barrington River, eastward of some open, swampy land known as "the plain." Collecting was done for three days on the platean, and also on the route-marches there and back, at six localities, which are indicated on the accompanying map by numbers; the figures in brackets, following the names of species in the list which is given below, are those of the numbered localities to show where specimens of each species were found.

The position and description of these localities are as under:—

- (1) Fagus*-brush, about four miles from our camp along the track to Stewart's Brook; 5000 feet.
- (2) Fagus-brush, about two miles southward from our eamp; 5000 feet.

^{*} Fagus Moorei F.v.M., is the predominant tree in the brushes at 4100 feet and upwards; but I did not notice it in the brushes below 3500 feet.

- (3) Fagus-brush along the Williams River; 4500 feet.
- (4) Eucalyptus* forest round the plain; 4800 feet.
- (5) Brushes along the Williams River below 3500 feet.
- (6) Mr. J. Rumble's farm on the Williams River, 20 miles from Dungog; 600 feet.



List of *Carabida* found, numbering forty-six species—including nine species and two varieties described as new.

Pamborus alternans Latr., (5); P. pradieri Chaud., (1, 2, 3, 5); Mystropomus subcostatus Chaud., (5): Enrylychnus dyschirioides Cast., (2); E. cylindricus, n.sp., (1, 2, 3, 4); Meonis semistriatus, n.sp., (3); M. minor, n.sp., (1, 2); Mecyclothorux ambiguus Erichs., (4); Amblytelus curtus Fabr., (4); A. minutus Macl.; Dystrichothorux sloanei Blkb.; D. rittipennis Sl., (4); Trichosternus vigorsi Gory, (5); T. cyaneus Chaud., (2); T.(!) australicus, n.sp., (2); Cerutoferonia regalis Cast., (5); Notonomus augustibasis Sl., (1, 2, 3, 5); N. johnstoni Sl., (5); N. truncatus, n.sp., (1, 2, 3); N. hedleyi,

^{*} Eucolyptus coriucea A. Cunn., was the most plentiful tree about our camp; all the bark-carabs taken on the plateau were found on this tree.

n.sp.,(1, 2, 3); N. australis Cast.,(1, 4); N. amabilis Cast.,(5); N. frontevirens n.sp.,(1, 2, 3); Prosopogmus chalybeipennis Chaud., (1, 2, 3, 5); Tachys curticollis Sl., (6); Lacordairia cychroides Cast.,(3); Siagonyx blackburni, n.sp., (1, 2, 3); Gnathaphanus pulcher Dej.,(6); Gn. melanarius Dej.,(6); Diaphoromerus edwardsi Cast., var. virescens, n.var.,(4); Hypharpax australis Dej., (6); Lecanomerus major Blkb., (1, 2, 3); Xanthophæa grandis Chaud.,(4); X. ferruginea Chaud.,; Trigonothops pacifica Erichs., (4); Sarothrocrepis corticalis Fabr., var. infuscata, n.var., (4); S. suavis Blkb., (4); Celænephes parallelus Schmidt-Goeb. (6); Philophlæus obtusus Chaud.,(6); Ph. luculentus Newm.,(6); Agonoch·la ruficollis Sl.,(4); A. guttata(?) Chaud.,(6); A. macleayi Sl., (4); A. fenestrata Blkb., (4); A. plagiata, n.sp. (4); Silphomorpha ovalis Cast.,(6); S. discoidalis Cast.,(4).

No definite conclusions can be drawn from the small number of Carabida which can be collected in any district during one short visit; at most, a fair idea of the species to be found at one period of the year can be gained. Fifteen species are definitely recorded as having been found below the level of 4,000 feet; and to these may be added three, widely distributed species which are without exact locality, but which undoubtedly do inhabit the lower ground; these eighteen species are all known species, which are found in various parts of the coastal districts of New South Wales between Sydney and the Chaence River. Twenty-eight species were collected above the altitude of 4,100 feet; these are of far more interest than those from the lower country, no less than eight of them being undescribed species. One of these, Trichosternus(!) australicus Sl., is a remarkable and interesting species, evidently an ancient type, which is more allied to New Zealand than to existing Australian species. Another is Agonochila ruficollis Sl., hitherto only known to inhabit the forests of South-Western Australia, but which is closely allied to a Tasmanian species, and to A. binotata White, of New Zealand; the other species are members of typical genera of Eastern Australia. Altogether, the Carabide of the Barrington Tops show a general affinity to those of eastern New South Wales, with some indications of a connection with the south.

EURYLYCHNUS CYLINDRICUS, n.sp.

Elongate-oval, subcylindrical; head stout, one supraorbital seta on each side; prothorax cordate; clytra oval, lightly 8-striate. Black.

Head convex (3.7 mm. across eyes); vertex transversely impressed; frontal impressions strong, curved, diverging backwards; eyes round, prominent. Prothorax broader than long (4.6 x 5 mm.), widest before middle, wider at apex (4 mm.) than base (3 mm.); sides rounded: anterior angles wide, rounded; basal angles rounded: lateral border thick, merging with surface of prothorax at basal angles; a short, deep, foveiform, basal impression connected with posterior extremity of lateral channel on each side; one, setigerous, marginal puncture on each side at about one-half the length of prothorax: median line not strongly impressed. Elytra convex (10.5 x 5.8 mm.): striæ shallow, simple, distinct on disc, faint on sides; interstices depressed. Apex of abdomen with one seta on each side in both sexes. Prosternum bordered along anterior margin. Anterior tarsi similar in both sexes; outer angle of two basal joints prominent. Length 17-20, breadth 5:4-6 mm.

Hab.—Mount Royal Range, N.S.W. Common under logs in the Fagus-brushes, from 4,500 to 5,000 feet.

A distinct species allied to *E. regularis* Sl., but narrower (especially prothorax) and more cylindrical; prothorax smaller, narrower at apex, less ampliate at widest part, anterior angles less distant from head and less marked; elytra far more lightly striate.

MEONIS SEMISTRIATUS, n.sp.

Elongate-oval, convex. Black.

Head ordinary (2:7 mm. across eyes). Prothorax truncate-cordate (4×3.8 mm.), of nearly equal width at apex (2.75 mm.) and base (2.8 mm.); sides lightly rounded, lightly sinuate to base; base truncate, sloping forward to basal angles, these sharply marked. Elytra oval (8.5×5.1 mm.), lightly 3-striate on disc; sides and apical declivity havigate; humaral angles marked, subdentate. Length 15.5, breadth 5.1 mm.

Hab.—Mount Royal Range, N.S.W. Five specimens were found under logs in the Fagus-brush along the Williams River, at 4.500 feet.

A distinct species, differing from all the species hitherto described by having only the three inner striæ on each elytron present; these striæ are only marked before the apical declivity, which is lævigate, as is also the lateral part of each elytron outside the third interstice; in these respects, it agrees with the small species, *M. minor* described below.

MEONIS MINOR, n.sp.

Elongate-oval, convex. Black.

Head ordinary (1·7 mm. across eyes). Prothorax truncate-cordate, about as long as broad (2·4 \times 2·5 mm.), of equal width at apex and base (1·8 mm.); sides lightly rounded, strongly sinuate to base; base truncate; basal angles sharply marked. Elytra oval (4·7 \times 3 mm.), lightly 3-striate on disc; sides and apical declivity levigate; humeral angles marked, subdentate. Length 8·5-9, breadth 3 mm.

Hab.—Mount Royal Range, N.S.W. Three specimens in brushes at the source of the Barrington River, 5,000 feet.

Allied to *M. semistriatus* Sl., but the great difference in size (which is constant in the five specimens of *M. semistriatus*, and the three specimens of *M. minor*, which I have seen), constrains me to regard it as a distinct species. In the case of *M. angusticollis* Sl., of which I found examples of two distinct sizes at Dorrigo, specimens of the different sizes occurred together; but with *M. semistriatus* and *M. minor*, the specimens were found several miles apart, at different altitudes, and on different watersheds; further collecting to ascertain the range and variation in size of these two species is necessary before a definite opinion can be given on the position to be assigned to *M. minor*; that is, whether, or not, it is merely a variety of *M. semistriatus*. Comparing *M. minor* with the smaller form of *M. angusticollis*, it is noticed that the prothorax is shorter, wider, less strongly rounded on sides, basal sinuosity shorter, elytra less rounded on sides, less

strongly striate, fourth stria not marked, apical declivity nonstriate.

Table of species of the genus Meonis.

- 1(6) Elytra with fourth and fifth striæ well developed on apical declivity.
- 3(2) Elytra 4-striate on disc.

- 6(1) Elytra with apical declivity and sides beyond fourth interstice lavigate.
- 8(7) Elytra lightly 3-striate, prothorax with sides lightly rounded and lightly simuate posteriorly.
- 9(10) Size large (15.5 mm.)
 M. semistriatus Sl.

 10(9) Size small (9 mm.)
 M. minor Sl.

Note.—No specimen of M. ater Cast., is available to me at present. It is said by Castelnau to differ from M. niger Cast., by having four striæ on the elytra, not five as in M. niger. It is allied to M. angusticollis Sl., from Dorrigo, N.S.W., which requires comparison with it; specimens of M. niger are in the Howitt Collection at the National Museum, Melbourne, ticketed "Brisbane."

TRICHOSTERNUS(?) AUSTRALICUS, n.sp.

Elongate; head large, mentum with sinus parallel on sides, median tooth bifid; palpi elongate, slender; antennæ slender, setaceous; prothorax subcordate, lateral margins wide, basal angles obtuse, posterior marginal seta a little before base; elytra oval, strongly striate, interstices lightly convex, 3, 5, and 7 seriate-punctate, basal border a little raised at humeral angles, lateral margins wide; prosternum glabrous between coxæ; metepisterna short; legs long, light; posterior trochanters long, narrow, depressed on posterior side; anterior tarsi in \$\delta\$ with three basal joints dilatate and biseriately squamose beneath. Nitid, occiput and disc of pronotum dark copper; front and sides of pronotum brassy; elytra dark copper with bright cupreous

margin; under surface piceous; trochanters, tarsi, and mouthparts reddish-piceous.

Head a little narrowed behind eyes (4.25 mm. across eyes); front widely biimpressed. Prothorax broader than long (4.5×5.3) mm.), widest before middle, wider at apex (4.15 mm.) than base (3.6 mm.); sides lightly rounded at anterior marginal puncture, obliquely narrowed to base (subsimuate before base from some points of view); apex lightly emarginate; anterior angles obtuse, hardly advanced; hase lightly emarginate above peduncle; lateral border strongly reflexed on basal half, particularly towards basal angles; lateral basal impressions wide. Elytra much wider than prothorax (11 \times 7 mm.); sides strongly rounded to peduncle; striæ a little crenulate; striole at base of first interstice short; interstices 1-8 equal, ninth depressed, third 3- or 4-punctate, fifth and seventh 2-punctate on basal half. Prosternum, mesosternum, and metasternum glabrous. Ambulatorial setæ of ventral segments present; apex of abdomen unisetose on each side, a slight notch in middle. Length 20.5, breadth 7 mm.

Hab.—Mount Royal Range, N.S.W. One specimen (δ) was found by me on the steep escarpment at the source of the Allyn river, 400 feet from the summit, under a log on the stony bank of a rivulet, in a very damp situation.

This species is an isolated one in the Australian fauna, and is not truly congeneric with the other Australian species which have been referred to the genus Trichosteruns. It has not the interstices of the elytra costate, as have all our other species. It is more allied to New Zealand species, for which the late Tschitscherine proposed (though without diagnosing it) a new genus, Nesopterostichus, with Trichosteruns guérini Chaud., for the type.* I do not know T. guérini in nature, nor have I sufficient knowledge of the species of New Zealand to say definitely that T. australicus is actually congeneric with them; but I cannot think it will remain in the same genus with the costate Australian species of Trichosteruus, when the classification of the Pterostichini is revised.

^{* (7.} Hor. Soc. Ent. Ross., xxxv., 1902, p.521, note.

Notonomus truncatus, n.sp,

Elliptical-oval, convex; prothorax rounded on sides, angles not marked, posterior marginal seta before basal angle, not on border; elytra oval, fully striate, interstices depressed, third 3-punctate, eighth and ninth subequal on basal half, basal border not raised above lateral border at humeral angles, apex truncate; hind tarsi elongate, narrow. Black.

Head convex (3.5 mm. across eyes). Prothorax broader than long (4 × 4.5 mm.), convex, a little narrower at base (3 mm.) than apex (3.5 mm.), lavigate; sides rounded; anterior angles close to head; basal angles obtuse: lateral marginal channel not defined near base; lateral basal impressions short, wide; lateral border narrow. Elytra oval (10 × 5.8 mm.); lateral apical sinuosities well developed; striæ decided, less strongly impressed in Q than in \mathcal{J} : interstices depressed on disc, eighth depressed, rather narrow, hardly as wide as ninth on basal half, tenth moderately developed, extending forward from apical sinuosity for one-third the distance to base of elytra. Intereoxal declivity of prosternum wide, rounded; of mesosternum, concave. Four posterior tarsi without spinules beneath costa of external side of basal joint. Length 16-18-5 mm., breadth 5:3-6-4 mm.

Hab.—Mount Royal Range, N.S.W. Plentiful under logs in the Fagus-brushes, at the sources of the Williams and Barrington Rivers, 4,500 to 5,000 feet.

Allied to *N. johnstoni* Sl., and a member of the *excisipennis*-group; but sharply differentiated from all the other species of the genus *Notonomus* by the truncate elytra, which have the apex truncate opposite the four, inner strike of each elytron, so as to expose the apex of the abdomen.

Notonomus hedleyl, n.sp.

Elliptical-oval, subdepressed: prothorax rounded on sides, basal angles rounded off, posterior marginal seta on border at base; elytra oval, strongly and fully striate, third interstice 3-punctate, eighth and ninth rather narrow, subequal, basal border raised above lateral border at humeral angles. Black.

Head ordinary (2.5 mm. across eyes). Prothorax broader than long (3.25 × 3.7 mm.), a little wider at apex (2.8 mm.) than base (2.6 mm.); sides lightly rounded, roundly angustate to base; border extending round basal angles (which are indicated by the presence of the posterior setigerous puncture on the border) to lateral basal impressions, these short and wide. Elytra truncate-oval (8 × 4.5 mm.); lateral apical sinuosities wide, weakly developed; tenth interstice moderately developed near apex. Intercoxal declivity of prosternum flat, of mesosternum a little concave. First joint of four posterior tarsi without spinules beneath costa of outer side. Length 12.5-14.8, breadth 4.2-5 mm.

Hab.—Mount Royal Range, N.S.W.

Not uncommon under logs in the Fagus-brushes, at the sources of the Williams and Barrington Rivers; 4,500 to 5,000 feet. I have dedicated it to Mr. C. Hedley, conchologist, in whose company I found it.

I place it next *N. marginatus* Cast., and *N. fergusoni* Sl. It has the facies of *N. marginatus*, var. sydneyensis Sl., but differs conspicuously by its black colour; prothorax with basal angles far less marked; elytra with third interstice 3-punctate, lateral apical sinuosities less strongly developed; intercoxal declivity of prosternum flat, It resembles *N. fergusoni* by colour, and the obtuseness of the basal angles of the prothorax, but differs by all the other characters given above as differentiating it from *N. marginatus*, var. sydneyensis, in facies, it is much less robust than *N. fergusoni*.

NOTONOMUS FRONTEVIRENS, n.sp.

Elliptical-oval, convex; prothorax subcordate, rounded on sides, narrower across base (3.5 mm.) than apex (4 mm.), posterior marginal seta on border at basal angle; elytra oval, strongly striate, interstices convex, third 4- or 5-punctate, basal border not dentate at humeral angles. Head bright green on upper surface; pronotum nitid, bronze-copper; elytra bronzy, ninth interstice and marginal channel brighter (greenish or cupreous); undersurface and legs black; antennæ with basal joints black.

Head convex (3.65 mm. across eyes); eyes convex. Prothorax broader than long (4×5 mm.); sides strongly rounded, roundly angustate to base; border wide, reflexed; lateral basal impressions short, wide. Elytra oval (11×6.5 mm.), convex; lateral apical sinuosities wide, feeble; striæ subcrenulate; eighth and ninth interstices short, well developed towards apex. Intercoxal declivity of prosternum flat, of mesosternum lightly concave. Four posterior tarsi costate on external side without spinules beneath costæ. Length 19-23, breadth 6.25-7.4 mm.

Hab.—Mount Royal Range, N.S.W. Not uncommon under logs in the Fagus-brushes, at the sources of the Williams and Barrington Rivers, 4,500 to 5,000 feet. Seven specimens have been examined.

Belongs to the *australis*-group. It is allied to, and resembles *N. colossus* Sl., but differs by form more convex; prothorax smaller, narrower across base, more strongly rounded on sides (particularly towards base), anterior angles more rounded and nearer to head; clytra more oval, border narrower; posterior femora less swollen in middle; upper surface of head bright green, prothorax cupreous, elytra coppery-bronze, antennæ black (not reddish).

SIAGONYX BLACKBURNI, n.sp.

Siagonyx augustata Blackb., (not Lacordairia augustata Cast.), Trans. Roy. Soc. S. Aust., 1901, p.116.

Elliptical-oval, depressed; labrum bisinuate; prothorax very little broader than long $(2.8 \times 3 \text{ mm.})$. Black.

Prothorax narrow, strongly narrowed to base, widest before middle; apex and base of equal width (2 mm.), apex lightly emarginate, narrowly bordered; anterior angles rounded; base emarginate, rounded at basal angles; lateral margins wide. Elytra much wider than prothorax, oval $(9 \times 5.5 \text{ mm.})$, strongly striate; a short, distinct striole at base of first interstice; third interstice bipunctate near second stria. Length 12.5-15.6, breadth 4.5-6 mm.

Hab.—N.S.W.: Fagus-brushes at the sources of the Williams

and Barrington Rivers, Kiama, Burrawang.—Victoria: Wood's Point, Marysville, Warburton, Yarragon, Ballarat, Princetown.

This is the species which Blackburn regarded as Lacordairia angustata Cast., but, with this opinion, I cannot agree. I regard L. angustata as a true Lacordairia, in all probability conspecific with L. cychroides Cast., which I have from Raleigh, Comboyne, Williams River, and Gosford, N.S.W. L. blackburni is common in collections; it is over thirty years ago since I first found it in the Otway forest, but it has never been described. In the proportions of the prothorax, it varies considerably; a specimen from Kiama, in my collection, has the dimensions of the prothorax as follows—3·5 × 3·6, apex 2·5, base 2·7 mm. It differs from S. amplipennis Macl., (which extends as far south as Dorrigo) by labrum not rather deeply emarginate, but bisinuate (middle more prominent than anterior angles), prothorax more elongate and narrower, elytra less deeply striate, etc.

Diaphoromerus edwardsi Cast., var. virescens, n.var.

Oval, convex; prothorax transverse, much wider at base than apex, basal angles obtuse; elytra truncate-oval, striate, interstices depressed, second with an elongate striole at base, third unipunctate at beginning of apical declivity, humeral angles subdentate. Nitid, minutely shagreened; upper surface rather bright green; undersurface virescent; labrum, legs, antennæ after second joint, and palpi (excepting their apices) black; first joint of antennæ reddish-testaceons. Length 7·7-8·5, breadth 3·2-3·5 mm.

Hab.—N.S.W.: sources of Barrington River (Sloane), Ebor (Tillyard).

A single specimen (Q) occurred to me in open country near Mr. Edwards' house (5,000 feet). Mr. Tillyard had formerly found it at Ebor. It seems a variety of D. edwardsi Cast., which is said by Chaudoir to be shining olive-bronze; by Castelnau, "dark æneous-green, with a bluish tinge."

SAROTHROCREPIS CORTICALIS Fabr., var. INFUSCATA, n.var.

Differs from S. corticalis Fabr., by pattern of elytra; the black apical patch extends forward along interstices 6-8 to the base,

and near the base overspreads interstices 2-5, with the result that a dull testaceous, sutural space on the basal half of the elytra is enclosed: at its widest part, this basal plaga extends outwards to the fifth or sixth interstice on each elytron, is divided posteriorly by a forward prolongation of the ante-apical black area, and extends along the first interstice to the base. The dark basal part of the elytra is infuscate, not nearly as black as the ante-apical patch. The abdomen is slightly more setulose than in S. corticalis, but less so than in S. setulosa Sl. As in S. corticalis, the interstices are non-setulose, but have minute punctures along the course of the fifth as in S. corticalis (these punctures being most noticeable towards the apex). Length 9-10-3, breadth 4-5 mm.

Hab.—Mount Royal Range, N.S.W.

Common under loose bark on the trunks of *Eucalyptus coriacea*, at 5,000 feet.

1 have specimens of this variety from Sydney, Victoria, and Tasmania.

Agonochila plagiata, n.sp.

Depressed: elytra wide in proportion to prothorax; head finely shagreened, sparsely punctulate; prothorax transverse, apex lightly emarginate, base strongly bisinuate, posterior angles marked, but obtuse, one or two marginal setae on anterior half; elytra broad, densely and rather coarsely punctate, striae and interstices indistinct, third interstice 3-punctate. Legs, antenna, mouth-parts, lateral margins of prothorax, a wide posthumeral plaga on each elytron, and undersurface testaceous (sides of abdomen fuscous); head and disc of prothorax usually brownish; elytra brownish with a variable pattern—usually a wide, testaceous, posthumeral plaga on each elytron and an indefinite apical patch; sometimes the posthumeral plagae join the apical patch by a narrow, ill-defined extension along the fourth interstice.

Head stout (1·3 mm. across eyes), minutely shagreened, and sparsely punctate under a lens; eyes prominent. Prothorax wide (1·2 \times 2 mm.), widest before middle, a little narrower at apex (1·4 mm.) than base (1·5 mm.), finely setulose-punctate under a

lens; disc rather convex; margins wide, depressed; sides rounded anteriorly, narrowed and subsinuate posteriorly; apex lightly emarginate, anterior angles rounded; base shortly lobed in middle, basal angles obtuse, median line strongly impressed. Elytra broad (4×3 mm.), widest about posterior third, a little narrowed to base, rounded on sides; humeral angles widely rounded, Length 7-7·5, breadth 3-3·5 mm.

Hab.—Mount Royal Range, N.S.W. Common under loose bark on trunks of E. coriacea, at 5,000 feet.

This is one of the largest species which has been attributed to the genus Ayonochila. Its distinguishing characters are its broad elytra, with a wide, posthumeral, testaceous plaga on each elytron. The pattern of the elytra varies a good deal:—taking the groundcolour as pitchy-brown, there is usually a wide, testaceous, posthumeral plaga on each elytron, and an apical, duller-coloured patch (more or less common to both elytra); sometimes the posthumeral and apical markings are widely separated by the brown ground-pattern; sometimes the plage extend backwards and join the apical mark, so that the brown parts of the elytra become arranged in three, irregular stripes, viz., a sutural stripe and one near each side, these stripes being wide and near together about the apical third of the elytra. Compared with A. corticalis Erichs., A. plagiata is larger and differently marked; prothorax with sides more strongly narrowed to base, elytra more strongly punctate. It is remarkable to find, in this species, the prothorax with either one or two, anterior, marginal setæ on each side; where there are two setse, these are wide apart, the posterior one situated as usual, the anterior one a little less than half-way between it and the anterior angle. Twenty-six specimens have been examined; of these, seventeen had one seta, and nine two setæ. Specimens of both sexes occurred with one and two setæ.